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ABSTRACT

This study focused on the identification of specific neonatal temperamental characteristics which may act as early modifiers of mother-infant interaction. Two hypotheses were investigated: (1) certain infant behaviors might be distinguished by the mothers and these characteristics might selectively contribute to the mother's self-image; and (2) an infant effect on maternal self-image might be measurable long before an infant effect on overt maternal caretaking behavior. Subjects were 15 mothers and their infants who were participating in an ongoing longitudinal study of parent-infant interaction. Brazelton examinations of the infants' behaviors were performed at 48-72 hours postpartum. Maternal self-image was assessed by a rating scale based on an interview at four weeks postpartum. Three aspects of mother's self-image were explored: self-image in a maternal role, self-image of her ability to function in adult relationships, and self-insight. Analysis of the data strongly suggest that alert neonates with a heightened capacity to respond to visual and auditory stimuli influence their mother's self-image favorably. The implications of maternal self-image for the later development of mother-infant interaction are discussed. (SDH)

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Interactional Influence of Infant Characteristics and Postpartum Maternal Self-Image

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A recent major trend among investigations of early child development has been an emphasis on a bi-directional model of mother-infant interaction. According to this view both mother and infant have the capacity to elicit behavior from the other because each is a source of stimulation and reinforcement. Both individuals contribute to a social system which is interactive in nature since the responses of one participant are capable of modifying the responses of the other. Despite the sophistication of this model, studies of early parent-infant interaction have primarily focused on patterns of maternal caretaking while information concerning maternal behavior evoked by infant characteristics is notably lacking. Bell (1971) has pointed out that "if we treat each response of the caretaker as a possible stimulus for the young, we should also look for all the ways in which stimuli from the young may affect the caretaker."

Studies of early infant characteristics have shown that certain behavioral capacities are functional shortly after birth. Additional studies have called attention to the considerable individual variation which infants display in response to external cues (Grossman and Greenberg, 1957; Brown, 1964; Birns, 1965). Schaeffer and Emerson (1966) reported differential infant responsiveness to physical contact which was independent of either maternal or social variables. The findings of these studies collectively support the notion that the young infant is not a passive organism, but possesses a wide range of characteristics capable of modifying both the amount and style of maternal responsiveness.

A precise definition of which infant characteristics are more active modifiers of maternal response is currently unavailable. An initial contribution was made by Bowlby (1958) who suggested five infant behaviors--visual following, smiling, crying, clinging, following and sucking--as innate releasers of maternal behavior. Other studies have emphasized the importance of infant state as a determining variable (Escalona, 1968; Lewis, 1973), while Robson (1967) has pointed out the importance of the infant's capacity to fixate on the mother's eyes.

The present study focused on the identification of specific neonatal temperamental characteristics which may act as early modifiers of mother-infant interaction. Since this was the first experience of mothering for all women who participated in the study, it is reasonable to assume that they were attentive observers of their infant's behaviors. A working hypothesis was that certain infant behaviors might be distinguished by the mothers, and that these characteristics might selectively contribute to the mother's self-image. An additional hypothesis was that an infant effect on maternal self-image might be measurable long before an infant effect on overt maternal caretaking behavior. Therefore, emphasis was placed on early measurement during the first month of life. A useful tool for evaluating very early infant behaviors is the Brazelton Neonatal Assessment Scale. This reliably measures a wide range of newborn behaviors and describes infant capabilities along dimensions relevant to developing social relationships (Brazelton, 1973).

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Methods

The sample consisted of fifteen mothers and their infants (6 male, 9 female) derived from an ongoing longitudinal study of parent-infant interaction. As has been mentioned previously, Brazelton examinations were performed in the newborn nursery at 48-72 hours postpartum.

Maternal self-image was assessed by a rating scale based on an interview at four weeks postpartum. The interview generally lasted from 60 to 90 minutes while the infant was cared for separately by other members of the staff. The style and content of the interview were structured but questions were asked in an open-ended fashion and mothers were encouraged to answer as freely as possible. In some instances, areas thought to reflect higher emotional content were discussed at greater length.

Rather than attempting to classify mothers according to personality types or syndromes, interview ratings encompassed more varied measures of maternal perceptions. Three aspects of the mother's self-image were explored. The first component was devoted to the mother's self-image in a maternal role. Included were her confidence as a mother, her emotional involvement with her infant and the extent to which she perceived her infant as a unique individual.

The second component was formulated to explore the mother's self-image of her ability to function in adult relationships. In this grouping were the mother's capacity for closeness, to give and take affection and her appreciation of another's feelings.

The last section centered on the mother's self-insight. Here the focus was on the mother's psychological maturity, especially her appreciation that motivational factors affect her relationship with others. This part of the interview was broadest in scope and included parental, sibling and spouse relationships.

Ratings of the three components were also combined to form an overall rating of composite maternal self-image. The interviewer had no knowledge of antenatal, labor and delivery or infant variables. Reliability between interviewer and observer was established with nine subjects.

Results

Individual items of the Brazelton Scale as well as three clusters derived by factor analysis were correlated with the ratings of maternal self-image. The only individual Brazelton items which were clearly related were the items which had been grouped to form the Alertness cluster: inanimate and animate auditory orientation, inanimate and animate visual orientation and alertness. No other individual items attained statistical significance. Of the three clusters (Alertness, Irritability and Motor Maturity) only the Alertness cluster was significantly related to maternal self-image at one month. The separate components of Composite maternal self-image were themselves highly intercorrelated but are presented separately because the individual items and the Alertness cluster were more significantly related to the mother's

self-image in a maternal role and self-insight than to her self-image in adult relationships. Inanimate and animate auditory orientation were more highly correlated than inanimate or animate visual orientation.

Discussion

The data strongly suggests that more alert neonates with a heightened capacity to respond to visual and auditory stimuli favorably influence their mother's self-image at one month postpartum. The relationships presented by Dr. Standley lend some support for saying that although newborn behaviors are to some degree determined prenatally, they are also modified by childbirth medication. Infant motor maturity which was inversely related to analgesia and anesthesia is not related to maternal self-image, but we must keep in mind the possibility that motor maturity could influence maternal self-image, but its effect was confounded by childbirth medication. How a newborn behavioral effect is selectively modified is an important question for future study.

Infants obtaining the highest scores on visual orientation items repeatedly displayed a change in facial expression, a brighter look, a widening of the eyes and a decrease in random activity when presented with a ball or face; they were able to focus on and follow these stimuli with relatively smooth, continuous head movements. Higher scores on auditory orientation were obtained by infants who turned their heads and manifested an alerting response. Through head turning, alerting and eye movements, the infant is placed in contact with the environment

month before the motoric capacity to explore the environment has taken place. Visual and auditory responsiveness facilitate the infant's ability to interact reciprocally with a caretaker and maintain continued contact both at a distance and for prolonged periods of time (Walters and Parks, 1964).

To understand fully the meaning of the relationship between infant visual and auditory responsiveness and maternal self-image, it is important to recognize the implications of maternal self-image for the later development of mother-infant interaction. We believe a positive maternal self-image contributes to the future activation of the full repertoire of maternal attachment behaviors. A mother must favorably regard her own ability to fulfill a maternal role and to relate to her infant before she is able to enter into a more intense relationship with her child. Maternal attachment behavior grows progressively stronger during the first year of life. Since the development of a positive self-image logically procedes the emergence of greater affective involvement with the infant, we have good reason to suspect that influences on the development of maternal self-image might be at work in the first few weeks after delivery. The data suggests that during this early time period, when a mother is first beginning to interact with her infant, visual and auditory responsiveness are the infant characteristics to which the mother selectively attaches the greatest importance. The variability of each infant's capacity to initiate a favorable maternal self-image

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may in fact be an important independent variable. The alert, visually and auditory responsive baby may be an essential activater in a chain of interaction leading to the release of maternal affective responses which foster mother-infant attachment.

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Table 1

Pearson Correlation Coefficients: Three Day Brazelton Clusters and Alertness Items with Four Week Postpartum Maternal Self-Image

Three Day Brazelton Scale	Components of Self-Image: In Maternal Role	In Adult Relations	Self-Insight	Composite Self-Image
Cluster: Motor Maturity	.33	.40	.36	.38
Cluster: Irritability	-.03	.15	.16	.11
Cluster: Alertness	.78**	.59*	.77**	.76**
Inanimate Visual	.64*	.43	.59*	.58*
Inanimate Auditory	.79*	.70**	.86**	.84**
Animate Visual	.63*	.45	.61*	.60*
Animate Auditory	.76**	.70**	.82**	.81**
Animate Visual and Auditory	.63*	.46	.63*	.61*
Alertness	.83**	.58*	.75**	.75**

* $p < .05$

** $p < .01$

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